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EXAMINER

YANG, RYAN R

ART UNIT

PAPER NUMBER

2672

DATE MAILED: 01/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/592,734

Applicant(s)

KOYAMA, FUMIO

Examiner

Ryan R Yang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This action is responsive to communications: Amendment, filed on 12/26/2002.  
This action is final.
2. Claims 1-12 are pending in this application. Claims 1 and 7 are independent claims. In the Amendment, filed on 12/26/2002, claims 1, 2, 6, 7 and 12 were amended.
3. The present title of the invention is "Color correction in image display" as filed originally.
4. The inventor of the Japanese Patent Publication Number 11-113019 is Hideo, instead of Yasushi, as misstated in the last Office Action.

### ***Claim Rejections - 35 USC § 102***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Muraji et al. (5,260,797).

As per claim 1, Muraji et al., hereinafter Muraji, discloses an image display apparatus comprising:

an image processor for outputting image data including plural color component data (Figure 1 8);

a gain corrector for correcting chromaticity levels of the image data output by the image processor (Figure 1 9); and

an image display device having a plurality of pixels from each of whose pixels light for forming an image exits in accordance with the corrected image data corrected by the gain corrector (Figure 1 5);

wherein the gain corrector corrects the level of at least one of the plural color component data applied to the pixels in accordance with the positions of the pixels such that, when image data representing an image of a uniform color are output from the image processor, difference in chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels ("a signal correction circuit for correcting said red and blue color component signals independently of one another so that a luminance distribution on said screen by each of said three projection lenses becomes a predetermined nonuniform luminance distribution according to the predetermined correction data, thereby correcting the nonuniformity of the luminance caused by the optical device", column 2, line 38-46).

7. As per claim 2, Muraji demonstrated all the elements as applied in the rejection of independent claim 1, supra, and further discloses the gain corrector corrects the chromaticity levels of all but a specific one of the plural color component data applied to the pixels to reduce difference in level between the specific color component data and the other color component data ("The red and blue color component signals of an input video signal are corrected independently of one another so that their luminance is commensurate with that of the green color component signal", column 2, line 52-55).

8. As per claim 3, Muraji demonstrated all the elements as applied in the rejection of claim 2, supra, and further discloses the specific color component data is the type of color component data that makes the greatest contribution to the luminance of the light for forming the image ("the green color component signal", column 2, line 55).

9. As per claim 4, Muraji demonstrated all the elements as applied in the rejection of claim 3, supra, and further discloses the plural color component data are red, green and blue component data and the specific color component data is the green component data ("The red and blue color component signals of an input video signal are corrected independently of one another so that their luminance is commensurate with that of the green color component signal", column 2, line 52-55).

10. As per claim 7, Muraji discloses an image display method comprising the steps of:

(a) providing image data including plural color component data ("a driving circuit for generating three driving signals in accordance with red, green and blue color component signals of an input video signal, and for respectively feeding said three driving signals into said three image display devices", column 2, line 32-36);

(b) correcting chromaticity levels of the image data; and

(c) producing light representing an image at a plurality of pixels of an image display device in accordance with the corrected image data ("by projecting the light modulated by the video display device on the screen to generate an image, an image uniform in brightness and color even in peripheral parts can be displayed on the projection screen", column 2, line 46-51);

wherein the step (b) includes the step of correcting the level of at least one of the plural color component data applied to the pixels in accordance with the positions of the pixels such that, when image data representing an image of a uniform color are output from the image processor, difference in chromaticity of light exiting from the pixels is reduced among the pixels without making luminance of the light exiting from the pixels of the image display device the same at all pixels ("a signal correction circuit for correcting said red and blue color component signals independently of one another so that a luminance distribution on said screen by each of said three projection lenses becomes a predetermined nonuniform luminance distribution according to the predetermined correction data, thereby correcting the nonuniformity of the luminance caused by the optical device", column 2, line 38-46).

11. As per claim 8, Muraji demonstrated all the elements as applied in the rejection of independent claim 7, supra, and further discloses the step of correcting the level of at least one of the plural color component data includes the step of correcting the levels of all but a specific one of the plural color component data applied to the pixels to reduce difference in level between the specific color component data and the other color component data ("The red and blue color component signals of an input video signal are corrected independently of one another so that their luminance is commensurate with that of the green color component signal", column 2, line 52-55).

12. As per claim 9, Muraji demonstrated all the elements as applied in the rejection of dependent claim 8, supra, and further discloses the specific color component data is the type of color component data that makes the greatest contribution to the luminance

of the light for forming the image ("the green color component signal", column 2, line 55).

13. As per claim 10, Muraji demonstrated all the elements as applied in the rejection of dependent claim 9, supra, and further discloses the plural color component data are red, green and blue component data and the specific color component data is the green component data ("The red and blue color component signals of an input video signal are corrected independently of one another so that their luminance is commensurate with that of the green color component signal", column 2, line 52-55).

### ***Claim Rejections - 35 USC § 103***

14. Claims 5, 6, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraji (US 5,260,797) in view of Hideo (JP 11-113019).

As per claim 5, Muraji demonstrated all the elements as applied in the rejection of independent claim 1.

Muraji discloses an apparatus for correcting nonuniformity of an image display, it is noted that Muraji does not explicitly disclose the display is segmented and correction values are interpolated from the apex values, however, this is known in the art as taught by Hideo. Hideo discloses an image display correction method in which the plurality of pixels are segmented into a plurality of small areas of polygonal shape (see Figure 4); correction values for apex pixels corresponding to apexes of the small blocks are

determined in advance, and correction values of pixels other than the apex pixels in each small areas are interpolated from the correction values of the apex pixels of the

small area (Figure 10, where the coordinates of the four corner position  $G(X_n, Y_n)$  and correction values are entered).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Hideo into Muraji because Muraji discloses an image display apparatus and Hideo discloses an image correction method by segmenting the display area in order to form a smoother corrected image.

15. As per claim 6, Muraji and Hideo demonstrated all the elements as applied in the rejection of dependent claim 5, *supra*, and Hideo further the plurality of pixels are segmented into the plurality of small areas by a horizontal axis passing through a center pixel among the multiple pixels, a vertical axis passing through the center pixel, and defining the sides of a rhombus whose apexes are the extremities of the horizontal axis and the vertical axis (Figure 4, where a square is a special case of a rhombus).

16. As per claim 11, Muraji demonstrated all the elements as applied in the rejection of independent claim 7.

Muraji discloses an apparatus for correcting nonuniformity of an image display, it is noted that Muraji does not explicitly disclose the display is segmented and correction values are interpolated from the apex values, however, this is known in the art as taught by Hideo. Hideo discloses an image display correction method in which the plurality of pixels are segmented into a plurality of small areas of polygonal shape (see Figure 4); correction values for apex pixels corresponding to apexes of the small blocks are determined in advance, and correction values of pixels other than the apex pixels in each small areas are interpolated from the correction values of the apex pixels of the



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small area (Figure 10, where the coordinates of the four corner position  $G(X_n, Y_n)$  and correction values are entered).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Hideo into Muraji because Muraji discloses an image display apparatus and Hideo discloses an image correction method by segmenting the display area in order to form a smoother corrected image.

17. As per claim 12, Muraji and Hideo demonstrated all the elements as applied in the rejection of dependent claim 11, supra, and Hideo further the plurality of pixels are segmented into the plurality of small areas by a horizontal axis passing through a center pixel among the multiple pixels, a vertical axis passing through the center pixel, and defining the sides of a rhombus whose apexes are the extremities of the horizontal axis and the vertical axis (Figure 4, where a square is a special case of a rhombus).

Thus, it would have been obvious to one of ordinary skill in the art to incorporate the teaching of Hideo into Muraji because Muraji discloses an image display apparatus and Hideo discloses an image correction method by running axis through a center pixel in order to form a smoother corrected image.

### ***Response to Arguments***

18. Applicant's arguments filed 12/26/2002 have been fully considered but they are not persuasive.

As for claims 1 and 7, Applicant argues Muraji mainly discloses a method for adjusting color unevenness by compensating for changes in illumination characteristics

of projection lenses. However, these correction signals are generated by the Video Correction Circuit (Figure 1 9). This circuit can have amplifier (Figure 3 21). Therefore, the correction circuit provides gain correction factors to correct the chromaticity levels.

As per claim 5-6 and 11-12, claim 1 of Hideo (JP 11-113019) states "... A judgment means judges [a means divide the amendment field into four rectangle fields, using the amendment central point of the abovementioned amendment field as common, and / whether it is located to four above-mentioned blocks / which / of a rectangle field] in the pixel ... an amendment means carry out interpolation processing of each pixel in the above-mentioned amendment filed" (through Machine Translation). Thus, the display screen is divided through the center pixel and interpolated there forth.

### ***Conclusion***

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Inquiries

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ryan Yang** whose telephone number is **(703) 308-6133**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Razavi**, can be reached at **(703) 305-4713**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231


**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 305-47000377.

Ryan Yang  
January 23, 2003



**MICHAEL RAZAVI**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**